

NEW SPECIES, NAMES AND COMBINATIONS IN WEDELIA
(ASTERACEAE-HELIANTHEAE)

B. L. Turner

Dept. of Botany, University of Texas, Austin Tx, U.S.A.
78713

ABSTRACT

Six new Mexican species of Wedelia are described: W. chihuahuana, W. cronquistii, W. gonzalezorum, W. keilii, W. tehuantepecana and W. hintoniorum; and 4 new names and/or combinations are proposed: W. aggregata (Greenm.) B. Turner, W. greenmanii B. Turner, W. purpurea (Greenm.) B. Turner, and W. scabra (Cav.) B. Turner. When appropriate, the relationships of these taxa are briefly described and pertinent synonymy is presented.

Wedelia Jacq., nom. cons., is a large, complex, genus of perhaps 100 or more species. It is widely distributed throughout the tropical world, but largely centered in South America. Most workers relate the genus to Zexmenia. The latter can be distinguished by a suite of characters, most notably its thin-winged, flatter, disk achenes which mostly possess a rather broad, sessile, crown of lacerate scales, these usually bounded by rather stout persistent awns or bristles with broadened bases. I follow McVaugh (1984) in treating the genus Aspilia within the broad fabric of Wedelia, although Robinson (1984) would maintain Aspilia, albeit with reservation.

WEDELIA AGGREGATA (Greenm.) B. Turner, comb. nov.--

Based upon Aspilia (?) aggregata Greenm., Proc. Amer. Acad. Arts 39:102. 1903.

McVaugh (1984) thought this to be an aberrant form of Wedelia rosei Greenm., which, indeed, it appears to be. If so, it predates the latter name, having priority. Regardless, if it proves distinct, the present combination will be required.

WEDELIA CHIHUAHUANA B. Turner, sp. nov.

W. texanae (A. Gray) B. Turner similis sed caulibus laxis ut videtur procumbentibus et capitulis 1-3 in pedunculios 2-8 cm longis differt.

Perennial herbs to 50 cm high. Stems laxly

ascending or somewhat trailing, 50-70 cm long, arising from a branched, lignescent, root system. Leaves opposite throughout, mostly 2-7 cm long, 1-5 cm wide; petioles 1-4 mm long; blades ovate, 3-nervate, moderately to sparsely pubescent beneath with straight hispid hairs, the margins serrate to somewhat irregularly lacerate. Heads companulate, radiate, 1-2 cm across the extended rays, borne 1 to 3 in terminal capitulescences, the ultimate peduncles strigose, 2-8 cm long. Involucres 6-10 mm high, 2-3 seriate, the bracts subequal or the outer somewhat longer, the outer series lance-ovate, hispidulous, the inner series scarious, ciliate, the outer faces with 3 purple striae. Receptacular bracts acute with purple keels. Ray florets 8-13, neuter, the ligules yellow, 5-10 mm long. Disk florets 30-50, the corollas yellow, 4.5-5.0 mm long. Achenes (immature) ca 3 mm long, pubescent, unwinged, the pappus a crown of scales ca 0.5 mm high and 1 or 2 lateral bristles, 1.0-1.5 mm long.

TYPE: MEXICO. CHIHUAHUA: SW of Tomochi, "Rocky (rhyolitic) outcrops in pine-oak forests", ca 2100 m, 25 Sep 1980 A. Cronquist 11720 (holotype TEX; isotypes NY, NY, etc.).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. CHIHUAHUA: Cascada de Basaseachic, above falls near parking lot, 2000 m, ashy volcanic rocks, 14 Oct 1985, Eastoe & Clothier s.n. (LL); base of Basaseachic Waterfall, 1700 m, 4 Jul 1985, Duek & Mehrman s.n. (ARIZ); "along upper third of trail leading to bottom of Cascada de Basaseachic, 25 Jun 1987, Van Devender et al. 87-183 (ARIZ, TEX).

A very distinctive species, with heads superficially resembling W. greenmanii and leaves somewhat like those of W. hispida. The holotype is much-branched from the base having a somewhat more ascending aspect, but Cronquist on the label notes the stems to be "lax and clustered on a woody caudex with 1-several long roots." This description fits the habit of the additional collections cited.

WEDELIA GONZALEZORUM B. Turner, sp. nov.

W. aggregatae (Greenm.) B. Turner similis sed plantis brevioribus (10-25 cm altis) caulibus procumbentibus, foliis angustioribus vestimento grosse hispido in paginis inferis, et capituliis solitariis in pedunculis brevis (1-2 cm longis) differt.

Perennial herbs 10-25 cm high, the stems branched

from the base, procumbent or weakly ascending with shortened internodes, arising from a woody crown. Leaves opposite throughout, 3-5 cm long, 0.2-0.6 cm wide; petioles 0-2 mm long; blades linear-lanceolate to elliptic-lanceolate, thick and coarsely hispid on both surfaces, pinnately-veined, the margins enrolled and seemingly entire. Heads radiate, campanulate, single at the apices of primary or secondary stems, the peduncles 1-2 cm long; involucre 6-8 mm long, 2-3 seriate, the bracts subequal or the outer series somewhat longer. Ray florets 5-8, neuter, the ligules yellow, 6-10 mm long. Disk florets 15-30, the corollas yellow. Achenes broadly clavate, ca 4 mm long, 2 mm wide, purplish-black, hispidulous throughout with brownish hairs, the pappus a crown of scales ca 0.5 mm high, lateral to which are attached 2 short awns 0.5-1.0 mm long, the base bears a distinct caruncle or elaiosome.

TYPE: MEXICO. DURANGO: Mcpio. Mezquital; W de Sta. Ma. de Ocotan, a lo largo de margines de arroyo. "Vegetacion riparia en medio de Bosque de Pino-Encino.", 16 Oct 1984, M. Gonzalez & S. Acevedo 1525 (holotype TEX).

ADDITIONAL COLLECTIONS EXAMINED: MEXICO. DURANGO: Mcpio. Mezquital, 19 km de Los Charcos por el camino a Sa. Ma. Ocotan, 4 Oct 1983, S. & M. Gonzalez 2559 (TEX); Rancho de La Mesa (8 km de La Guajolota), 28 Nov 1985, I. Solis 400 (TEX).

A very distinct taxon, seemingly related to W. aggregata [including W. rosea (Greenm.) McVaugh], but distinguished by a large suite of characters, including habit, leaf-shape, vestiture, involucre size and shape, seed shape, and its color and vestiture. Actually, the relationships of W. aggregata is probably closer to W. purpurea since it has the habit, capitulescence and achenal features of the latter.

Wedelia aggregata, which occurs mostly west of the present species, largely along the Pacific slopes, is a stiffly erect suffruticose herb or shrublet to 1.5 m high. It occurs in or near the range of W. gonzalezorum and has also been collected in Mcpio. Mezquital, but at seemingly lower elevations in mostly Quercus-Arctostaphylos associations (30 km S El Troncon, por el camino a Temoaya), as exemplified by S. Gonzalez and R. Fernandez 2194, (TEX).

It is a pleasure to name this taxon for the two sisters, S. and M. Gonzalez, who first collected the species in 1983 and who have added many new species and

records to the flora of Durango through their botanical collections in the southern portions of that state.

WEDELIA CRONQUISTII B. Turner, sp. nov.

W. aggregatae (Greenm.) B. Turner similis sed praecipue differt foliis lineari-lanceolatis confertim et grosse albo-strigosis in paginis inferis et capitulis longioribus acheniis majoribus.

Suffruticose perennial herbs to 1 m high. Stems reddish, terete, roughly hispidulous. Leaves opposite throughout, 3-6 cm long, 2-6 mm wide; petioles 0-1 mm long; blades linear to linear-lanceolate, prominently pinnately nervate, densely appressed-strigose beneath with coarse hispid hairs, the margins serrulate to nearly entire. Heads mostly 2-3 in a terminal capitulescence, the ultimate peduncles 3-10 cm long. Involucres campanulate, 3-4 seriate, 10-12 mm high, the bracts graduate to subequal. Receptacles convex, the bracts linear with purple keels, mostly exceeding the disk florets. Ray florets 5-11, neuter, the ligules 6-9 mm long, yellow. Disk florets 30-50, the corollas yellow, ca 6 mm long, the tube 1 mm long, the limb cylindrical, ca 5 mm long. Achenes clavate, 4.0-4.5 mm long, ca 2 mm wide, pubescent, purplish or maculate, pubescent, the apex with a somewhat elevated, narrow, crown of united short scales 0.5-1.0 mm high, occasionally bounded by 1 or 2 short awns to 1 mm long.

TYPE: MEXICO. JALISCO. ca 23 road mi N of Guadajara (sic), on the road to San Cristobal de la Barranca, ca 4900 ft. open oak-grass savannas, 9 Nov 1962, A. Cronquist 9822 (holotype TEX; isotypes NY) NY!

McVaugh (1984) included type material of this taxon, with reservation, under his concept of *W. rosei* (= *W. aggregata* of the present treatment). He noted that "the hairs covering the lower leaf-surface are....quite different in aspect from the soft spreading hairs usually found in *W. rosei*." Leaf shape in type material of *W. cronquistii* also differs from that species in being linear-lanceolate, 2-6 mm wide, and not at all 3-nervate below. Indeed, leaf shape, pubescence and habit would appear to relate this taxon to *W. greenmanii*, standing somewhere between that species and *W. aggregata*.

WEDELIA GREENMANII B. Turner, nom. nov.--

Based upon *Aspilia stenophylla* Greenman, Proc. Amer. Acad. Arts 40:39. not *Wedelia stenophylla* Merrill

The type of this taxon is from Chihuahua, near Seven Star Mine, 2450 m, 28 Aug, 1899, Townsend & Barber 380 (GH!). Additional recent collections have been examined from a number of localities as follows: CHIHUAHUA: Lagotera, 5-6000 ft, 21 Jul 1965, Pennington 92 (TEX). SINALOA: 18 mi NE of Choix (20° 50'N, 108° 11'W). SONORA: 26 m W of the Chihuahua border, between Yepachic and Yecora, 24 Sep 1984, Sundberg & Lavin 2830 (TEX); La Mina Verde, 31 km de Cumpas, 23 Sep 1934, Wiggins 7417 (TEX). The Pennington collection differs in having larger leaves which are sparsely hispidulous beneath with coarse ascending hairs; it might represent an undescribed taxon.

WEDELIA HINTONIORUM B. Turner, sp. nov.

W. grayi McVaugh similis sed foliis sessilibus vel subsessilibus plerumque brevioribus linearis-oblancheolatis minute hispidulis in paginis superioribus et inferioribus et caulibus apice radicis ligneo cormiformi exorientibus differt.

Perennial herbs to 25 cm high. Stems suffruticose, erect or recumbent from a woody, corn-like, root or crown ca 2.5 cm wide and 4 cm long, 3-7 mm wide; petioles absent or nearly so (0-1 mm long); blades narrowly ovate to oblanceolate, weakly 3-nervate, hispidulous above and below, the margins somewhat serrulate apically. Heads single on peduncles 3-12 mm long. Involucres 8-12 mm high, 2-3 seriate, the bracts subequal, the outermost 3-5, mostly linear oblanceolate, leaf-like. Receptacular bracts linear-lanceolate in outline, 3-fid, about as long as the florets, with purplish-keels. Ray florets 8, neuter, the ligules yellow (?), ca 9 mm long, 3 mm wide. Disk florets ca 30, the corollas ca 5 mm long, glabrous, the tube ca 1 mm long, the lobes ca 1 mm long. Anther sacs blocksih. Achenes (immature) ca 2 mm long, the pappus a crown of shut scales or bristles ca 0.5 mm long.

TYPE: MEXICO. MEXICO: Cerro Muneca, District Temascaltepec, 2300 m, 13 Aug 1932, G. B., Hinton et al. 1352 (holotype LL).

The species superficially resembles the poorly known Wedelia grayi McVaugh and W. mexicana (Sch.-Bip.) McVaugh of northeastern Mexico. It differs from both in the nearly sessile, hispidulous leaves. It does not develop a rhizomatous complex forming mats such as occurs in the white-rayed W. grayi but appears to have

the habit of W. mexicana. I surmise that the rays are yellow, much as in the latter species, although it is not clear in the holotype.

The species is named for the G.B. Hinton family, deceased and living, who have given so much of their time and labor to both botanical exploration and the development of Mexico as a nation, G.B.'s son Jaime and, in turn, his son George both becoming Mexican citizens and settling under the shadow of Cerro Potosi along its western slopes where they maintain a very progressive apple orchard and farming enterprise.

WEDELIA KEILII B. Turner, sp. nov. Fig. 1.

W. mexicanae (Schultz-Bip.) McVaugh similis sed praecipue differt plantis omnino molliter pilosis et foliis valde laceratis.

Perennial herb to 25 cm high. Stems slender, densely pubescent with spreading multicellular trichomes 1-2 mm long, beneath these there exists a much shorter vestitute of white hispidulous, often uncinata, hairs 0.5-0.7 mm long. Leaves opposite throughout, 2.5-4.0 cm long, 1.0-1.6 cm wide; petioles 5-8 mm long; blades ovate-elliptic, 3-nervate, densely hispid above and below, the margins markedly lacerate. Heads mostly single on slender peduncles 3-9 cm long, subtending each head may be found 2 bract-like leaves which appear to grade into the outer involucreal bracts. Involucres campanulate, 7-8 mm high, 3-4 seriate, subequal, the inner series scarious with lacerate margins. Receptacular bracts truncate and markedly lacerate. Ray florets presumably present but sterile (ligules could not be detected but what appear to be throats were found on a few marginal abortive achenes). Disk florets 20-40, the corollas yellow. Achenes radially compressed, ca 5 mm long, sparsely pubescent, the margins with a narrow corky wing ca 0.3 mm wide, the pappus a terminal crown of short scales ca 0.7 mm high. Chromosome number, $n=22$ pairs.

TYPE: MEXICO. MICHOACAN: 16.3 mi S of Uruapan along route 37 (21.7 mi N of Nuevo Italia), "grassy hillsides with scattered shrubs and small trees", 3600 ft, 29 Aug 1981, David Keil & M. Luckow 15201 (holotype TEX; isotypes ENCB, MEXU, OBI).

As noted by Keil et al. (1988), this previously undescribed taxon (indeed, unencountered) has a chromosome count of $n=22$ pairs. The holotype and

isotype are apparently from the same plant since the collectors state upon the label, "One plant seen in tall grass on bank below roadside."

The grassland areas about Nueva Italia contain a number of restricted endemics including, for example, Chrysanthellum filiforme McVaugh and Stuessya michoacana B. Turner. It is a pleasure to name the species for Dr. David Keil who has discovered a number of novelties along the Pacific slopes of Mexico. His collections are always neatly preserved and his labels usually contain a wealth of information, often including chromosome counts, as noted above.

WEDELIA PURPUREA (Greenm.) B. Turner, comb. nov.

Based upon Aspilia purpurea Greenm., Proc. Amer. Acad. Arts 40:39.1904. I consider Aspilia scabrida Brandegee to be but a form of this taxon.

WEDELIA SCABRA (Cav.) B. Turner, comb. nov.--Based upon

Buphthalmum scabrum Cav., Ic. Plan. 1:53.t.167.1791.

Wedelia acapulcensis H.B.K., Nov. Gen. & Sp. 4:168.1818.

Stemmodontia scaberrima Cass., Dict. Sci. Nat. 46:407.1827. not Wedelia scaberrima Benth. (1839)

Lipochaeta strigosa DC., Prodr. 5:610.1836. Zexmenia strigosa (DC.) Sch.-Bip, in Seem. Bot. Voy. Herald 306.1856.

Wedelia fertilis McVaugh, Contr. Univ. Mich. Herb. 9:462.1972., not Wedelia strigosa Hook. & Arn.

Wedelia strigosa Hook. & Arn., Bot. Beech. Voy. 435.1841. Aspilia strigosa (Hook & Arn.) Hemsl., Biol. Centr. Amer. Bot. 2:171.1881.

Zexmenia hispida (H.B.K.) A. Gray var. ramosissima Greenm., Publ. Field Columbian Mus., Bot. Ser. 3:127.1904. Wedelia hispida (H.B.K.) var. ramosissima (Greenm.) K. Becker, Phytologia 31:25.1975.

The earliest name for the common widespread Wedelia of Mexico is apparently Buphthalmum scabrum Cav. The type figure of the latter was apparently made from garden-grown material, the seed of which was obtained in Mexico. Dr. John Beaman informs me (pers. comm.) that,

while he located several Cavanilles types of *Bupthalmum* in his visit to Madrid during the mid-1960s, he did not see or photograph any herbarium sheets of *B. scabrum*. While I have also not examined a preserved sheet, it is clear from the original description that the plant concerned belongs to the above complex and that it was probably obtained from the Pacific side of Mexico where decumbent plants with relatively large herbaceous involucre bracts occur, (as illustrated in the original plate).

McVaugh (1984) recognized *Wedelia acapulcensis* and *W. fertilis* as distinct species. As noted by McVaugh and yet others, the group is in much need of field study and until such studies are made it would seem undesirable to propose a suite of varietal names to accommodate the geographic variation that is suggested by the relatively few collections available for study.

My concept of *W. scabra* includes all of those specimens from Mexico with leaves having an indument with minute, apically-recurved hairs, (with the exception of *W. ayerscottiana* B. Turner which also possesses such hairs). I owe this observation to Dr. John Strother who called the character to my attention. While information relating to such hairs are absent in the type description of *W. scabra*, I infer that such are present (based upon yet other characters which mark the taxon). The name var. *ramosissima* (as part of *W. hispida*) has been applied to somewhat smaller-headed, shorter-peduncled, individuals that range from southern Mexico, into Central America and northward again up the Pacific side of Mexico; the var. *scabra* would apply to the larger-headed, longer-peduncled individuals. McVaugh (1984) would call the former plants *W. fertilis*; the latter *W. acapulcensis*. While he also used yet other characters to distinguish between these taxa (e.g., habit, corolla length, involucre size; etc.), I find all of these to be quite variable and difficult to apply.

WEDELIA TEHUANTEPECANA B. Turner, sp. nov.

W. scabrae (Cav.) B. Turner similis sed differt plantis fruticosis ramis divaricatis, foliis sine trichomatibus uncinatis, et acheniis coronis elevatis ab 2-3 setis persistentibus 3-6 mm longis definitis.

Much-branched, erect or somewhat procumbent, coarsely hispid shrubs or shrublets 0.5-1.5 m high. Leaves opposite 4-10 cm long, 1.5-4.0 cm wide; petioles 0.5-1.5 cm long, the upper portion winged; blades ovate

to subdeltoid, 3-nervate, coarsely hispid, uncinata hairs absent, the margins serrulate to coarsely and irregularly dentate. Heads radiate, mostly 1-3 in terminal cymules, the ultimate peduncles mostly 2-8 cm long. Involucres 10-12 mm high, narrowly campanulate, 2-3 seriate, the bracts subequal, the outer series greener and somewhat longer than the inner. Ray florets (5)8-11, sterile or rarely fertile, the ligules 5-10 mm long; achenes pistillate, those of the ray florets mostly abortive with a raised crown bounded by 3 bristles, those of the disk florets 5-6 mm long with a raised crown and usually 2 (rarely 3) bristles 3-6 mm long, the margins markedly winged at maturity.

TYPE: MEXICO. OAXACA: 20 km NE Juchitan, 5 km E of the junction of the Pan-American highway (190) with the Cross-isthmus highway (185), 100 m or less, 6 Nov 1970, A. Cronquist & J. Fay 10875 (holotype TEX; isotype NY).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. VERACRUZ: Mcpio., Mecayapan, 7 km S of Tatahuicapan, 16 Jul 1982, Nee et al. 25131 (F, TEX, XAL). OAXACA: 17 km NW of La Ventosa, 16 Jul 1958, King 596 (MICH, TEX); 4 km NNE of Tehuantepec, 5 Jul 1959, King 1360 (MICH, TEX); 4-5 km E of Juchitan, 12 Jul 1959, King 1637 (MICH, TEX); 9-10 km E of La Ventosa, 16 Jul 1959, King 1709 (MICH, TEX). CHIAPAS. Mcpio. Cintalapa, 5 km W of Rizo de Oro, 26 Aug 1974, Breedlove 36729 (LL); 7 km N of Tuxtla Gutierrez, 16 Oct 1965, Breedlove & Raven 13372 (LL); 5 km N of Tuxtla Gutierrez, 18 Oct 1965, Breedlove & Raven 13530 (LL); 12 mi E of Tanatepec, 31 Oct 1965, Cronquist & Sousa 10454 (NY, TEX); 1.6 m E of Oaxaca-Chiapas border, 2 Sep 1965, R. Jackson 7123 (TEX).

The species is distinguished from the widespread W. scabra by a number of characters including shrubby habit, coarsely hispid, often jaggedly serrate, leaves which lack uncinata hairs, larger achenes with an elevated crown which is subtended by 2-3 persistent bristles, 3-6 mm long, the margins markedly winged. So far as known it is largely confined to the region of the Isthmus of Tehuantepec.

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LITERATURE CITED

- Keil, D. J. et al. 1988. Chromosome studies in Asteraceae from the United States ...*Amer. J. Bot.* 75:652-668.
- McVaugh, R. 1984. Wedelia, in *Flora Nova-Galiciana* 12:1080-1092.
- Robinson, H. 1984. Studies in the Heliantheae (Asteraceae) XXXIII...*Phytologia* 55:415-423.

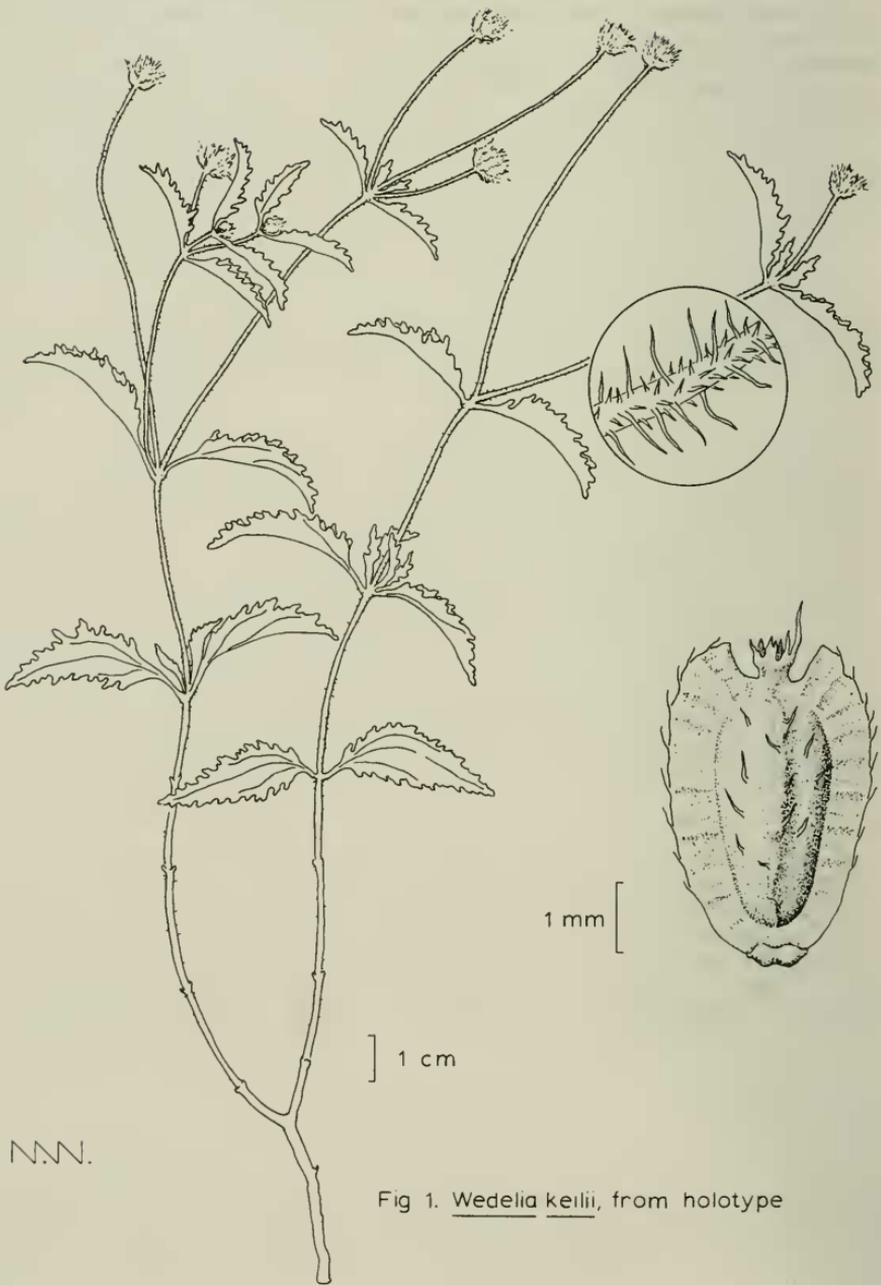


Fig 1. Wedelia keilii, from holotype